

**Notice of Allowability**

Application No.

09/835,125

Applicant(s)

GROENEWEGEN ET AL.

Examiner

Carl H. Layno *Carl H. Layno* 2/2/05

Art Unit

3762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Paper No.04112001.
2. ☒ The allowed claim(s) is/are 1-91.
3. ☒ The drawings filed on 11 April 2001 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |   |
|---|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)           |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____ |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date <u>1/15/02</u> | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                   |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material                              | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance  |
|   | 9. <input type="checkbox"/> Other _____   |

### **DETAILED ACTION**

1. Acknowledgment is made of applicant's preliminary amendments which were received by the Office on October 19, 2001 and on May 31, 2002.

2. Claims 1-91 are active and pending.

#### ***Priority***

3. Acknowledgement is made of applicant's claim for priority filing based upon U.S. Provisional Application 60/196,204, filed on April 11, 2000.

#### ***Information Disclosure Statement***

4. Acknowledgment is made of applicant's Information Disclosure Statement (PTO-1449) which was received by the Office on January 15, 2002.

#### ***Oath/Declaration***

5. Acknowledgment is made of applicant's latest signed oath/declaration, which was received on April 15, 2002.

#### ***Drawings***

6. Applicant's formal drawings were received by the Office on April 11, 2001 and have been approved by the Examiner.

***Allowable Subject Matter***

7. Claims 1-91 are allowed.

***Examiner's Amendment***

8. The application has been amended as follows:

-Re-write the Abstract to read as follows:

“ ABSTRACT

A system and method are provided for developing a database of body surface ECG P-wave maps for classification and localization of left-sided atrial arrhythmias. The system and method include generating and receiving P-wave data in a subject by left atrial pacing or receiving P-wave data in a subject during spontaneously occurring or induced left atrial arrhythmias; computing (e.g. potential or integral) maps of the P-wave data; classifying the maps specific to a left atrial ectopic origin; verifying the classification procedure; averaging the classified maps into mean maps; and storing and accessing the mean maps in the database. The mean maps of the P-wave data in the database can be used to automatically classify and localize P-wave data from a patient obtained during a left atrial arrhythmia such as atrial tachycardia, focal atrial fibrillation, or orthodromic atrioventricular reentrant tachycardia.”

***Reasons for Allowance***

9. The following is an examiner's statement of reasons for allowance:

Independent claims 1 and 41 describe system and method claims, respectively, for developing a database of body surface ECG P-wave data for the localization of left atrial arrhythmias. These claims recite the reception, classification, and averaging of P-waves, and the storage of resultant mean P-wave values in a database. Of the prior art references of record, only the Xue et al '038 patent, cited by the applicant as prior art, provides a reference which detects, analyzes, and averages P-waves. Unlike the applicant's claims, however, the device of Xue et al

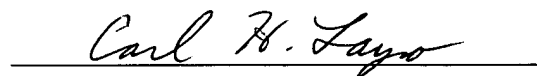
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stores its resultant P-wave averages in a template, not in a database, and has no provision for “classifying” P-waves prior to averaging. Though some references in the prior art utilize the concept of storing ECG data in databases (e.g. Kristbjarnarson ‘730 – applicant’s prior art), none teach the use of databases for storing averaged surface detected P-waves *per se*.

Independent claims 81 and 89 recite details of an apparatus and database for the classification and localization of left atrial arrhythmias which perform the P-wave reception and classification functions, described *supra* for claims 1 and 41, but further specify using “data maps” for performing the arrhythmia localization function. Having conducted a thorough search, the Examiner could find no references reading upon these features.

Unable to find any reference(s) which show or teach all of the applicant’s claimed details, the Examiner deems claims 1-91 to be allowable over the prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”



CARL LAYNO  
PRIMARY EXAMINER

CHL  
2/2/2005